Remarks

Claims 14 - 29 are pending. Favorable reconsideration is respectfully requested.

The present invention is directed to processes for reducing formation of aerosol in high speed coating compositions and to compositions exhibiting reduced aerosol generation. Release coatings are used on a large variety of substrates for a simply huge number of end uses. Coated parchment paper for baking cookies and cakes is one such application. An even larger application is the use of release paper to support pressure sensitive adhesive labels, such as Avery® labels. Such release sheets are also used in prepreg manufacture and the packaging of "sticky" goods.

To produce such release paper, a release coating must be applied. Probably the oldest of such processes and products is the production of waxed paper, large quantities of which are used today. However, wax coatings have numerous disadvantages in many applications, and silicone coatings have been increasingly used. Such coatings are generally one component coatings which are cured photochemically, or two component coatings which are of the addition-crosslinking type, requiring a hydrosilylation catalyst. Naturally, the higher the speed in which the substrate can be coated and the coating cured, the more economical the process. Thus, higher and higher coating speeds are being used.

Higher coating speeds come with the disadvantage that application methods, coupled with substrate speed, cause considerable aerosol formation. It is obviously desirable to minimize aerosolization to the maximum extent, for economical, safety, and toxicological reasons. Applicants have discovered that unique branched organopolysiloxanes are capable of severely reducing aerosol formation, and bond into the coating as well. The result is a rapidly curing non-bleeding coating.

The antimisting additives are prepared by the process described in the specification and in claim 14. A multiple unsaturated compound having at least three alkenyl

groups is reacted with a 1.3 to 10 fold stoichiometric excess of organosiloxanes containing Si-H groups, resulting in a "comb," "star" or "dendritic" molecule having only Si-H functionality. The resulting organopolysiloxanes are then equilibrated with conventional, non Si-H-containing siloxanes which are cyclic, linear, branched, or resin-like, and which contain hydrocarbon groups as their organo groups, and optionally also contain OH groups (silanol groups). The equilibration lowers the concentration of Si-H groups. Addition of these additives to a high speed coating composition resulted, in an amount of only 1 - 4% by weight, in a lowering of aerosol from a value of 17 to a value in the range of 1.15 to 11. In most cases, migration of the coating containing the additives was lessened as well.

Claims 13 - 27 have been rejected under 35 U.S.C. § 102(b) over Herzig et al. U.S. Patent 6,093,782 ("*Herzig*"). Applicants respectfully traverse this rejection.

Herzig is not directed to reducing aerosol formation in coating operations, and in fact does not even acknowledge that aerosolization exists or is a problem. *Herzig* is instead directed to providing high functionality crosslinkers for use in release coatings. To prepare his crosslinkers, *Herzig* performs Applicants' first step, reaction of an alkenyl "star" starter molecule with excess Si-H functional organopolysiloxane to form an Si-H functional polymer. Here, however, the similarity ends, for it is *Herzig's* desire to provide an even increased amount of Si-H functionality. To do this, *Herzig* equilibrates with additional Si-H functional organopolysiloxane. *See, e.g.* column 4, lines 6 - 9.

Applicants, on the other hand, do not desire to increase the amount of Si-H functionality, for the primary curing agent in their coating compositions is a conventional H-siloxane, for example that employed on page 29, a linear organopolysiloxane containing hydromethylsiloxane and trimethylsiloxane in a molar ratio of 24:1. Such a crosslinker is far less expensive than that of *Herzig*. Rather, Applicants actually dilute the concentration of Si-H groups by equilibrating.[1] This is the opposite to what *Herzig* has done. Furthermore, rather

[1] Applicants' attorney assumes that the Examiner is familiar with the process of equilibration, which is rather unique to organopolysiloxane chemistry. Copies of pages 26,

than replace the conventional crosslinker as *Herzig* did in Example 5 and Comparative Examples 1 and 2 (column 14), Applicants utilize only about 0.5 to 10 weight percent, preferably 1 to 5 weight percent of their compound in the coating. Withdrawal of the rejection over *Herzig* is solicited.

Applicants extend their appreciation to the Examiner for citing Herzig U.S. 6,764,717 and Clark U.S. 6,489,407, and *Herzig* published application 2003/0055194 as of interest. Unlike *Herzig '782*, each of the foregoing references deals with suppression of misting (aerosol). However, the antimisting additives of each are completely different from those of the subject invention and do not render the present claims either anticipated or obvious. *Herzig '717* pertains to antimisting additives containing Si-alkenyl groups, not Si-H groups, essentially the opposite of the present antimisting additives. Moreover, *Herzig '717* is coassigned, cannot antedate Applicants' March 7, 2002 priority date, and is not prior art under 35 U.S.C. § 103(c).

Clark U.S. 6,489,407 ("*Clark*") provides antimisting additives prepared by reacting a diene (linear) with an organopolysiloxane containing at least 3 Si-H groups. These additives are much less effective than Applicants' highly branched additives. Finally, Herzig U.S. 2003/0055194 discloses branched organofunctional polysiloxanes containing no Si-H groups.

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27 of SILICONES, CHEMISTRY AND TECHNOLOGY, Vulkan Verlag, Essen, Germany, 1991© are included for the Examiner's reference, if needed.

Applicants submit that the claims are now in condition for Allowance, and respectfully request a Notice to that effect.. If the Examiner believes that further discussion will advance the prosecution of the Application, the Examiner is highly encouraged to telephone Applicants' attorney at the number given below.

Respectfully submitted,

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